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LaSalle County Station
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Exelon Nuclear

RA05-67

August 19, 2005

10 CFR 50.73

United States Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555

LaSalle County Station, Unit 2
Facility Operating License No. NPF 18
NRC Docket No. 50-374

Subject: Licensee Event Report

In accordance with 10 CFR 50.73 (a)(2)(iv)(A), Exelon Generation Company, (EGC), LLC, is submitting Licensee Event Report Number 05-003-00, Docket No. 050-374.

Should you have any questions concerning this letter, please contact Mr. Terrence W. Simpkin, Regulatory Assurance Manager, at (815) 415-2800.

Respectfully,

Daniel Enright
Plant Manager
LaSalle County Station

Attachment: Licensee Event Report

cc: Regional Administrator - NRC Region III
NRC Senior Resident Inspector - LaSalle County Station

IE22

NRC FORM 366 (6-2004) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 06/30/2007

Estimated burden per response to comply with this mandatory collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records and FOIA/Privacy Service Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

1. FACILITY NAME	2. DOCKET NUMBER	3. PAGE
LaSalle County Station, Unit 2	05000374	1 of 3

4. TITLE: Multiple Containment Isolations Following Loss of 480 VAC Safety Related Buses Due to Failed Neutral Overcurrent Relay

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MO	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO	MO	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
06	21	2005	2005	- 003 -	00	08	19	2005	FACILITY NAME	DOCKET NUMBER

9. OPERATING MODE	4
10. POWER LEVEL	00

11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)

☐ 20.2201(b)	☐ 20.2203(a)(3)(ii)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(ix)(A)
☐ 20.2201(d)	☐ 20.2203(a)(4)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(x)
☐ 20.2203(a)(1)	☐ 50.36(c)(1)(i)(A)	☒ 50.73(a)(2)(iv)(A)	☐ 73.71(a)(4)
☐ 20.2203(a)(2)(i)	☐ 50.36(c)(1)(ii)(A)	☐ 50.73(a)(2)(v)(A)	☐ 73.71(a)(5)
☐ 20.2203(a)(2)(ii)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(v)(B)	☐ OTHER
☐ 20.2203(a)(2)(iii)	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(C)	Specify in Abstract below or in NRC From 366A
☐ 20.2203(a)(2)(iv)	☐ 50.73(a)(2)(i)(A)	☐ 50.73(a)(2)(v)(D)	
☐ 20.2203(a)(2)(v)	☐ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(vii)	
☐ 20.2203(a)(2)(vi)	☐ 50.73(a)(2)(i)(C)	☐ 50.73(a)(2)(viii)(A)	
☐ 20.2203(a)(3)(i)	☐ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(B)	

12. LICENSEE CONTACT FOR THIS LER

NAME	TELEPHONE NUMBER (Include Area Code)
Larry Bukantis, Electrical Maintenance	(815) 415-2576

13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX
B	EB	RLY	I005	Yes					

14. SUPPLEMENTAL REPORT EXPECTED		15. EXPECTED SUBMISSION DATE	MONTH	DAY	YEAR
☐ YES (If yes, complete EXPECTED SUBMISSION DATE)	☒ NO				

16. ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines)

On June 21, 2005, at 2340, the feed breaker (2AP04E) from 4160 VAC bus 241Y to 480 VAC safety related buses 235X and 235Y tripped open due to a neutral over-current fault on bus 235X. This trip caused a loss of the 2A Reactor Protection System (RPS) Motor-Generator (MG) Set, which resulted in multiple containment isolation valve closures and a Unit 2 half scram. The loss of power also resulted in a loss of the battery chargers for the Division 1 125VDC and 250VDC systems. The 2A Standby Liquid Control (SBLC) subsystem, 2A Residual Heat Removal (RHR), Low Pressure Core Spray (LPCS) and Reactor Core Isolation Cooling (RCIC) systems were declared inoperable due to the loss of Division 1 power.

The cause of the breaker trip was a failed silicon controlled rectifier in ABB Type GR-5 neutral over current relay 2451-AP055. The relay was replaced and the inoperable systems were subsequently restored. Long term corrective actions include replacing all safety-related Type GR-5 relays installed at LaSalle County Station.

1. FACILITY NAME	2. DOCKET NUMBER	6. LER NUMBER			3. PAGE
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17. NARRATIVE (If more space is required, use additional copies of NRC Form 366A)

PLANT AND SYSTEM IDENTIFICATION

General Electric - Boiling Water Reactor, 3489 Megawatts Thermal Rated Core Power

A. CONDITION PRIOR TO EVENT

Unit(s): 2 Event Date: 06/21/2005 Event Time: 2340 CDT
Reactor Mode(s): 1 Power Level(s): 100
Mode(s) Name: Run

B. DESCRIPTION OF EVENT

On June 21, 2005, at 2340, the feed breaker (2AP04E) from 4160 VAC bus 241Y to 480 VAC safety related buses 235X and 235Y tripped open due to a neutral over-current fault on bus 235X.

The loss of buses 235X and 235Y caused a loss of the 2A Reactor Protection System (RPS) [EF] Motor-Generator (MG) Set, which resulted in multiple containment isolation valve closures and a Unit 2 half scram. The loss of power also resulted in a loss of the battery chargers for the Division 1 125VDC and 250VDC (DC) [EJ] systems. The 2A Standby Liquid Control (SBLC) [BR] subsystem, 2A Residual Heat Removal (RHR) [BI], Low Pressure Core Spray (LPCS) [BM] and Reactor Core Isolation Cooling (RCIC) [BN] systems were declared inoperable due to the loss of Division 1 power.

On June 22, 2005, at 0227, it was determined that all Unit 2 Reactor Coolant System (RCS) leakage detection systems had been rendered inoperable by the isolation of Containment Monitoring, and Unit 2 entered a Technical Specification (TS) LCO 3.0.3 required shutdown time clock.

Troubleshooting determined that the cause of the feed breaker trip was a spurious trip of neutral over current relay 2451-AP055. The relay was replaced, and buses 235X and 235Y were re-energized at 0436, and the associated TS time clocks were exited. At 0500, the Division 1 125VDC and 250VDC battery chargers were re-energized, and TS 3.0.3 and all applicable TS 3.4.7 clocks were exited at 0505. The 250 VDC battery and the RCIC system were restored to operable status at 1405.

An 8-hour ENS notification (#41787) was made in accordance with 10 CFR 50.72 (b)(3)(iv)(A), due to the closure of containment isolation valves in multiple systems that occurred with the loss of buses 235X and 235Y. The systems that isolated include: Containment Monitoring, Drywell Floor Drains and Drywell Equipment Drains, Reactor Recirculation Flow Control Hydraulics, Drywell Instrument Nitrogen, Reactor Water Cleanup and Reactor Recirculation Sample System.

C. CAUSE OF EVENT

The cause of the feed breaker trip was a failure of ABB Type GR-5 neutral over current relay 2451-AP055. The root cause of the relay failure was age related degradation of the leaded glass insulation used in a Silicon Control Rectifier (SCR) internal to the neutral over current relay.

D. SAFETY ANALYSIS

The safety significance of this event is considered moderate because it resulted in the inoperability of multiple engineered safety feature (ESF) systems in Division 1, in the inoperability of RCIC, and presented a challenge to the control room team. The Division 2 ESF systems remained fully operable during the event. There were no plant transients as the result of this event.

A Phase 3 Significance Determination Process evaluation was performed for the event. The incremental conditional core damage probability ICCDP was 4.21E-08, much less than 1E-06, and the issue was classified as GREEN.

The condition did not result in a safety system functional failure.

E. CORRECTIVE ACTIONS

Immediate Actions:

- Bus 235X was meggered and no fault was found. Troubleshooting isolated the problem to a failed GR-5 neutral over-current relay, which was replaced (Complete).

Long-Term Actions:

- All safety-related type GR-5 relays will be replaced in accordance with a prioritized schedule (AT# 346214-29, 31).

F. PREVIOUS OCCURRENCES

LER 374/94-004 Reactor Scram Due To Trip Of Feed Breaker To Buses 231A/B

On 6/21/94, Unit 2 experienced a reactor scram upon loss of power to 480VAC buses 231A and 231B. Power was lost to the 480VAC buses as a result of the feed breaker tripping open upon an actuation of the neutral ground fault relay (ABB/Type GR-5) The cause of the breaker tripping was a degraded trip output Silicon Controlled Rectifier (SCR) on the Bus 231B 6900 KV ground fault relay. The relay was replaced and has not tripped since. The SCR was found to false trip when subject to fast transient noise, with impulses over 1kV. When the SCR was replaced the relay was not affected by noise. Six other relays from LaSalle were tested for susceptibility to noise and found to be satisfactory. These relays were then re-installed in the plant.

G. COMPONENT FAILURE DATA

Neutral Over-current Ground Shield Relay, Type GR-5, Catalog # 202D6141UL, ITE Imperial Corporation (ABB)